



Case Study

SUCCESSFUL VAGINAL DELIVERY IN OVERT CORD PROLAPSE: A RARE CASE REPORT WITH REVIEW OF LITERATURE AND AYURVEDIC PERSPECTIVE

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ABSTRACT

Umbilical cord prolapse is a rare but potentially life-threatening obstetric emergency that may rapidly lead to fetal hypoxia due to compression of the umbilical cord. Prompt diagnosis and immediate obstetric intervention are the key determinants of favorable maternal and neonatal outcomes. Although emergency cesarean section is the preferred mode of delivery in most cases, expedited vaginal delivery may be the safest option when the cervix is fully dilated and delivery is imminent. A 31-year-old multigravida (G4P3L3A0) woman at 37 weeks and 6 days of gestation presented in active labor with an uneventful antenatal history. General examination, routine laboratory investigations, and obstetric ultrasonography were within normal limits. During the second stage of labor, spontaneous rupture of membranes occurred at full cervical dilatation, followed by overt umbilical cord prolapse. Fetal heart rate decreased to 105 beats per minute. Immediate obstetric management was initiated, and considering complete cervical dilatation with imminent delivery, rapid vaginal delivery was performed. A live male neonate weighing 2.3kg was delivered with Apgar scores of 6/10 at one minute and 8/10 at five minutes. The placenta was delivered spontaneously and completely. No episiotomy was required. The postpartum period remained uneventful, and both mother and baby were healthy during the 15-day follow-up. This case emphasizes that early recognition, rapid clinical decision-making, and timely vaginal delivery can result in favorable maternal and neonatal outcomes even in overt umbilical cord prolapse. The case is further discussed in light of current obstetric evidence and the Ayurvedic concept of *Prasava Upadrava* and *Apana Vayu*.

INTRODUCTION

Umbilical cord prolapse is defined as the descent of the umbilical cord below or alongside the presenting fetal part after rupture of the fetal membranes, resulting in compression of the cord between the fetus and the maternal pelvis.^[1] It is an uncommon but catastrophic obstetric emergency, with a reported incidence of approximately 0.1–0.6% of all deliveries.^[2] Delay in diagnosis and intervention may lead to acute fetal hypoxia, metabolic acidosis, hypoxic-ischemic encephalopathy, and perinatal death.^[3]

The risk of cord prolapse is increased in conditions such as malpresentation, prematurity, polyhydramnios, multiple pregnancy, high unengaged presenting part, fetal congenital anomalies, and obstetric interventions including artificial rupture of membranes.^[4] Nevertheless, cord prolapse may also occur unexpectedly in apparently low-risk pregnancies with cephalic presentation, emphasizing the need for continuous intrapartum vigilance.^[5]

The primary objective in the management of overt umbilical cord prolapse is to relieve cord compression and achieve the shortest possible diagnosis-to-delivery interval.^[6] Emergency cesarean section is recommended in most situations when vaginal birth is not imminent. However, when the cervix is fully dilated and the fetal head is low, expedited vaginal delivery may provide the quickest

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and safest route of birth, thereby improving neonatal outcome.

According to Ayurveda, normal labor (*Prasava*) is a physiological event governed predominantly by *Apana Vayu*, one of the five subdivisions of *Vata Dosha*. *Apana Vayu* is responsible for *Garbha Nishkramana* (expulsion of the fetus), expulsion of the placenta, and proper completion of labor.^[8] Disturbance in its normal function may contribute to abnormalities during labor and delivery. Although umbilical cord prolapse is not described as a distinct disease entity in the classical Ayurvedic texts, obstetric complications occurring during labor can be understood under the broader concepts of *Prasava Upadrava* and *Prasava Vyapad*, where timely intervention is emphasized to protect both the mother and the fetus.^[9]

Classical Ayurvedic texts such as *Charaka Samhita*, *Sushruta Samhita*, and *Ashtanga Hridaya* describe the importance of vigilant monitoring during labor, the preservation of maternal strength, and prompt management of difficult labor (*Prasava Kashata*)^[7-9]. Although the emergency management of cord prolapse follows modern obstetric principles, the Ayurvedic understanding of normal labor physiology provides a complementary perspective on maintaining maternal and fetal wellbeing.

The present case is unique because overt umbilical cord prolapse developed after spontaneous rupture of membranes at full cervical dilatation in an otherwise uncomplicated term pregnancy. Instead of emergency cesarean section, immediate vaginal delivery was accomplished because birth was imminent, resulting in a favorable maternal and neonatal outcome. The case is presented to highlight the importance of rapid clinical decision-making and to discuss the condition from both contemporary obstetric and *Ayurvedic* perspectives.

Case Presentation

Patient Information

A 31-year-old multigravida woman (Gravida 4, Para 3, Living 3, Abortion 0) at 37 weeks and 6 days of gestation was admitted to the labor room with complaints of regular labor pain of gradual onset and increasing intensity. She had received regular antenatal care throughout pregnancy. There was no history of gestational hypertension, gestational diabetes mellitus, thyroid disorder, anemia, antepartum hemorrhage, fever, trauma, or any significant medical or surgical illness. Her previous three pregnancies had resulted in full-term normal vaginal deliveries.

Clinical Findings

On admission, the patient was conscious, cooperative, and hemodynamically stable. General physical examination was unremarkable.

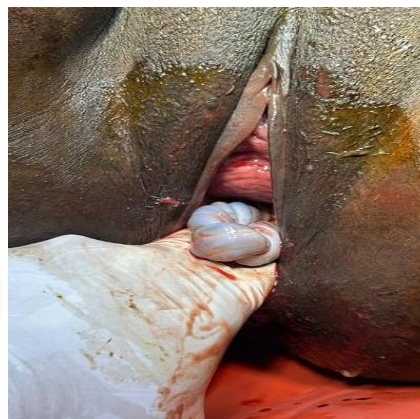
Vital Parameters

- Blood Pressure: 120/80mmHg
- Pulse Rate: 84/min.
- Respiratory Rate: 19/min.
- Temperature: 98.3°F

Routine antenatal investigations, including complete blood count, blood grouping and Rh typing, blood sugar, urine examination, and serological investigations, were within normal limits.

Obstetric ultrasonography demonstrated a singleton live intrauterine fetus corresponding to 37 weeks and 6 days of gestation in cephalic presentation with no detectable congenital anomaly. Placental location and amniotic fluid volume were within normal limits.

Intrapartum Course



The patient progressed spontaneously into active labor. Maternal vital signs and fetal heart Rate were monitored regularly. Labor progressed satisfactorily, and complete cervical dilatation was achieved.

Following spontaneous rupture of membranes at full cervical dilatation, overt umbilical cord prolapse was identified. Immediate auscultation revealed a fetal heart rate of 105 beats per minute, suggestive of early fetal compromise.

Recognizing the obstetric emergency, immediate measures were undertaken to minimize umbilical cord compression by "Knee Chest Position" while preparing for the quickest possible mode of delivery. As the cervix was fully dilated, the fetal head was engaged, and vaginal birth was considered imminent, an expedited vaginal delivery was performed without delay.

Delivery Outcome

A live male neonate weighing 2.3kg was delivered vaginally.



The neonatal Apgar score was 6/10 at one minute and improved to 8/10 at five minutes following routine neonatal care.

No episiotomy was required. The placenta was delivered spontaneously and completely, and active management of the third stage of labor was carried out according to institutional protocol. There was no postpartum hemorrhage or retained placental tissue.

Maternal Outcome

The mother remained hemodynamically stable throughout the postpartum period. No immediate maternal complications such as postpartum hemorrhage, genital tract trauma requiring repair, puerperal sepsis, or urinary complications were observed. Breastfeeding was initiated successfully, and the patient was discharged in satisfactory condition.

Neonatal Outcome

The neonate cried immediately after birth and responded well to routine newborn care. No advanced neonatal resuscitation or neonatal intensive care unit admission was required. Clinical examination before discharge was normal.

Follow-up

Mother and baby were reviewed after 15 days. The mother had an uneventful postnatal recovery with no evidence of infection, abnormal bleeding, or other postpartum complications. The neonate was feeding well, gaining weight appropriately, and showed no neurological or systemic abnormalities.

Timeline	Clinical Event
Labor started	At 37+6days of pregnancy
During labor	Maternal vitals and fetal heart monitoring normal
Full cervical dilatation	Spontaneous rupture of membranes
Immediately after ROM	Overt umbilical cord prolapse detected
Same time	Fetal heart rate decreased to 105 bpm
Within minutes	Expedited vaginal delivery performed
Birth	Live male baby delivered (2.3 kg)
1 minute	Apgar score 6/10
5 minutes	Apgar score improved to 8/10
Third stage	Placenta delivered spontaneously and completely
15 th day	Mother and baby healthy on follow-up

DISCUSSION

Umbilical cord prolapse is one of the most time-critical obstetric emergencies because compression of the prolapsed cord between the presenting fetal part and the maternal pelvis may rapidly interrupt fetoplacental blood flow, leading to fetal hypoxia, metabolic acidosis, neurological injury, and, if prolonged, perinatal death.^[1] Early diagnosis, immediate decompression of the cord, and the shortest possible diagnosis-to-delivery interval are the fundamental principles of management.

The reported incidence of umbilical cord prolapse ranges from 0.1% to 0.6% of all deliveries. Although several predisposing factors have been described, including malpresentation, prematurity,

polyhydramnios, multiple pregnancy, high unengaged presenting part, and obstetric interventions, cord prolapse may also occur unexpectedly in term pregnancies with cephalic presentation, as observed in the present case.^[4] This emphasizes that continuous intrapartum vigilance is essential even in apparently low-risk pregnancies.

In the present case, spontaneous rupture of membranes at full cervical dilatation was immediately followed by overt umbilical cord prolapse. Fetal heart rate decreased to 105 beats/minute, indicating evolving fetal compromise. The decision regarding the mode of delivery was made without delay. Because the cervix was fully dilated, the fetal head was engaged,

and vaginal birth was imminent, expedited vaginal delivery was considered the fastest and safest option. The diagnosis-to-delivery interval was approximately 7 minutes, resulting in the birth of a healthy male neonate with improving Apgar scores (6/10 at one minute and 8/10 at five minutes). No maternal or neonatal complications were observed during the 15-day follow-up.

The Royal College of Obstetricians and Gynaecologists recommends immediate delivery after the diagnosis of cord prolapse, with the mode of delivery determined by the clinical situation. Emergency cesarean section is generally indicated when vaginal delivery is not imminent. However, when the cervix is fully dilated and a rapid vaginal birth can be achieved more quickly than operative delivery, vaginal delivery is an appropriate and evidence-based option. The management in the present case was therefore consistent with established obstetric recommendations.

From an Ayurvedic perspective, normal labor (*Prasava*) is governed by *Apana Vayu*, which is responsible for *Garbha Nishkramana* (expulsion of the fetus), expulsion of the placenta, and the orderly completion of childbirth. Although umbilical cord prolapse is not described as an independent disease entity in the classical *Ayurvedic* texts, intrapartum complications may be interpreted under the broader concepts of *Prasava Upadrava* and *Prasava Vyapad*. Classical *Ayurvedic* literature emphasizes careful observation of labor, timely decision-making, and the protection of both mother and fetus.

In the present case, no Ayurvedic therapeutic intervention was administered because the condition represented an acute obstetric emergency requiring immediate modern obstetric management. Nevertheless, the principles of preserving maternal and fetal wellbeing through prompt and appropriate intervention are conceptually consistent with the objectives of Ayurvedic obstetrics. Therefore, an integrated understanding of *Prasava* physiology and evidence-based emergency obstetric practice may contribute to improved maternal and neonatal outcomes.

The successful outcome of this case can be attributed to early recognition of overt cord prolapse, prompt fetal assessment, rapid clinical decision-making, and completion of vaginal delivery within seven minutes of diagnosis. This case highlights the importance of skilled labor room management, multidisciplinary preparedness, and adherence to evidence-based obstetric protocols in reducing adverse perinatal outcomes.

Learning Points

- Umbilical cord prolapse can occur even in apparently uncomplicated term pregnancies with cephalic presentation.
- Continuous fetal surveillance during labor is essential for early recognition of obstetric emergencies.
- When the cervix is fully dilated and vaginal birth is imminent, expedited vaginal delivery may be safer and faster than emergency cesarean section.
- A diagnosis-to-delivery interval of approximately seven minutes contributed to the favorable maternal and neonatal outcome in the present case.
- Ayurvedic concepts of *Prasava* and *Apana Vayu* complement the understanding of normal labor physiology, while emergency management should always follow evidence-based obstetric principles.

CONCLUSION

Umbilical cord prolapse is an uncommon but life-threatening obstetric emergency that requires immediate diagnosis and prompt intervention to prevent fetal hypoxia and adverse perinatal outcomes. Although emergency cesarean section is the preferred mode of delivery in most cases, expedited vaginal delivery remains the most appropriate option when the cervix is fully dilated and birth is imminent.

In the present case, overt umbilical cord prolapse occurred unexpectedly following spontaneous rupture of membranes at full cervical dilatation in an otherwise uncomplicated term pregnancy. Early recognition of the prolapsed cord, rapid assessment of fetal status, and timely decision-making resulted in a diagnosis-to-delivery interval of approximately seven minutes. This prompt intervention led to the successful vaginal delivery of a healthy male neonate with satisfactory improvement in Apgar scores and an uneventful maternal recovery. Both mother and baby remained healthy during the 15-day follow-up period.

From an Ayurvedic perspective, normal labor is governed by the physiological functions of *Apana Vayu*, while labor-related complications are broadly understood under the concepts of *Prasava Upadrava*. Although no Ayurvedic therapeutic intervention was administered in this emergency, the Ayurvedic emphasis on preserving maternal and fetal wellbeing through timely management conceptually complements modern evidence-based obstetric practice.

This case highlights that appropriate clinical judgment, skilled intrapartum care, and rapid obstetric intervention can achieve favorable maternal and

neonatal outcomes even in potentially catastrophic emergencies such as overt umbilical cord prolapse.

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